

SoCal PhotonTransport

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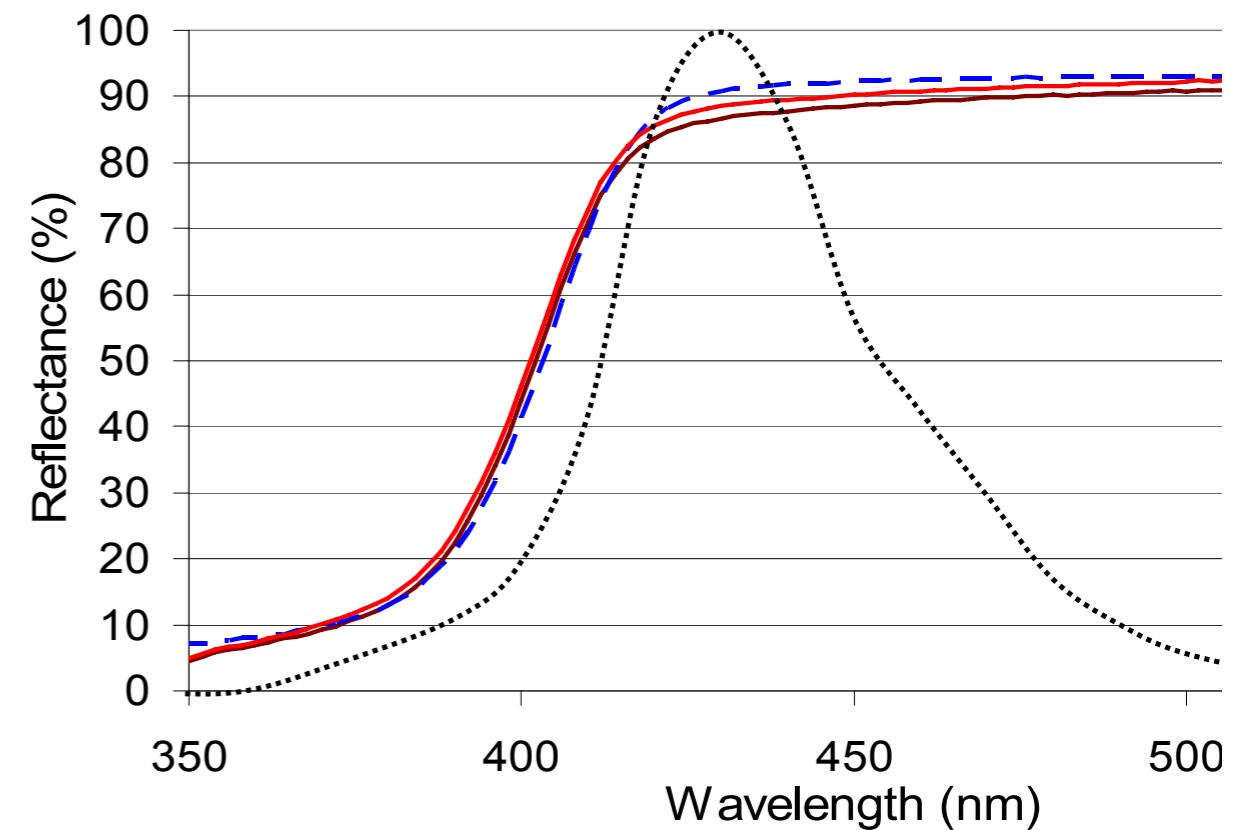
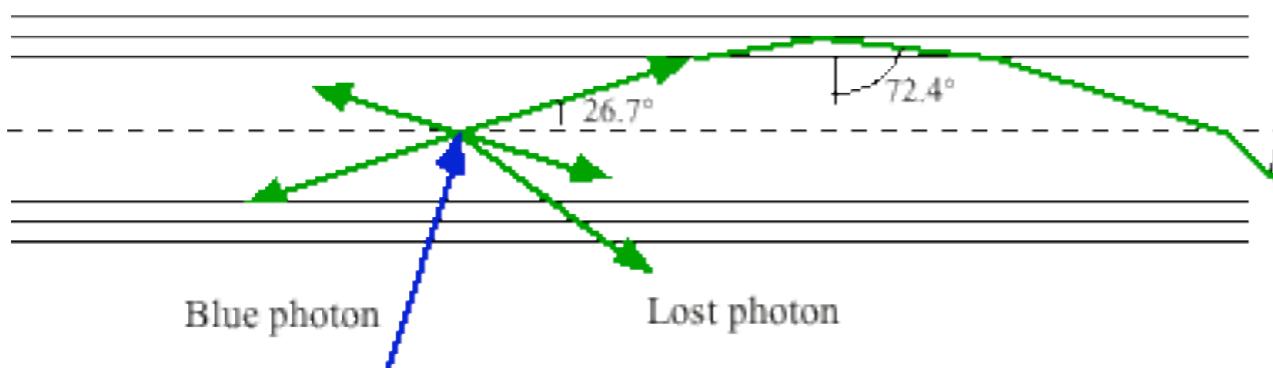
New “simple” phototransporter

- Simple because it does a brute force method
- Creates and tracks individual photons until they are either:
 - Absorbed in the scintillator or WLS fiber
 - Captured by the WLS fiber.
- Has wavelength dependance TiO_2 reflection and scintillator absorption length.
- Simulates the fiber cladding, but has simple 10% capture efficiency.
- Can be used with any REROOT/SoCal geometry.

Input physics

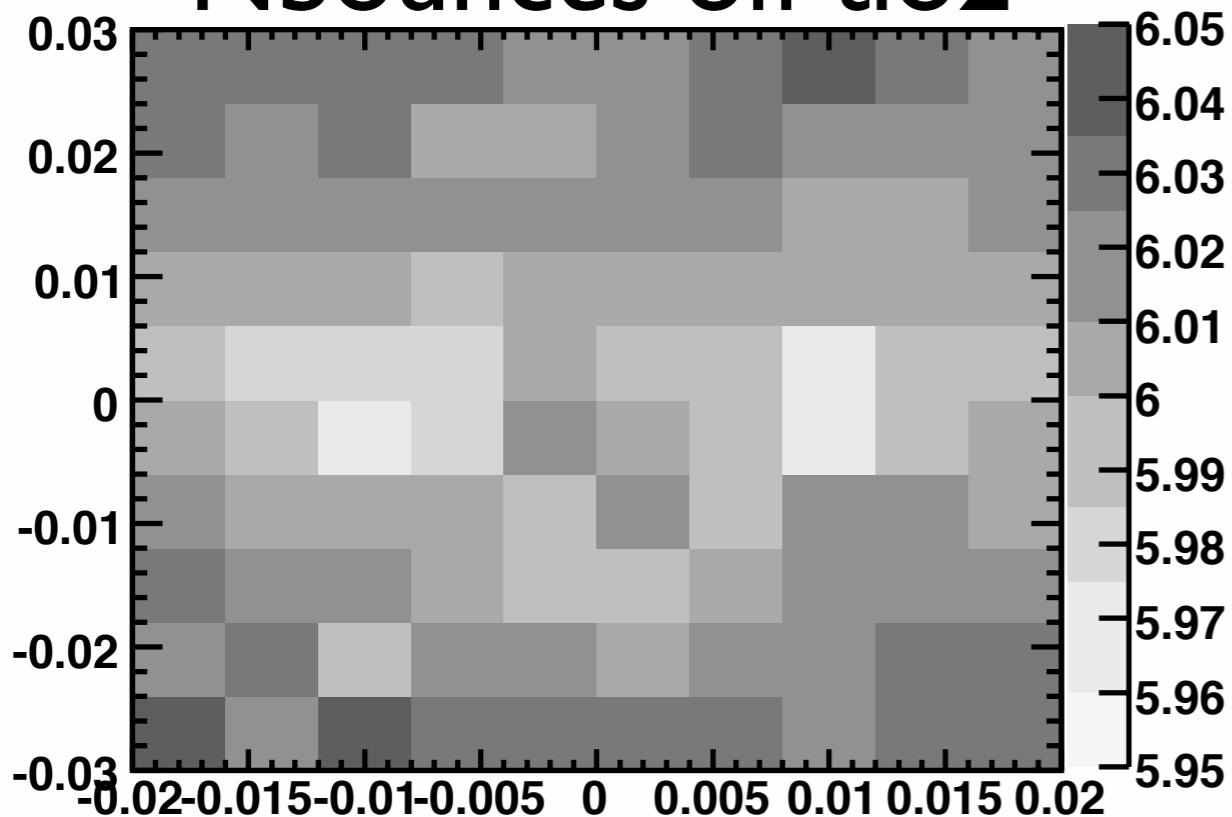
- Number of blue photons:
 - 0.01 blue photons per eV
 - Birks law
- Wavelength dependent TiO₂ reflections
- diffuse TiO₂ reflection at cell surfaces
- Snel's law/Spectral reflection at fiber surfaces

Light capture by internal reflection

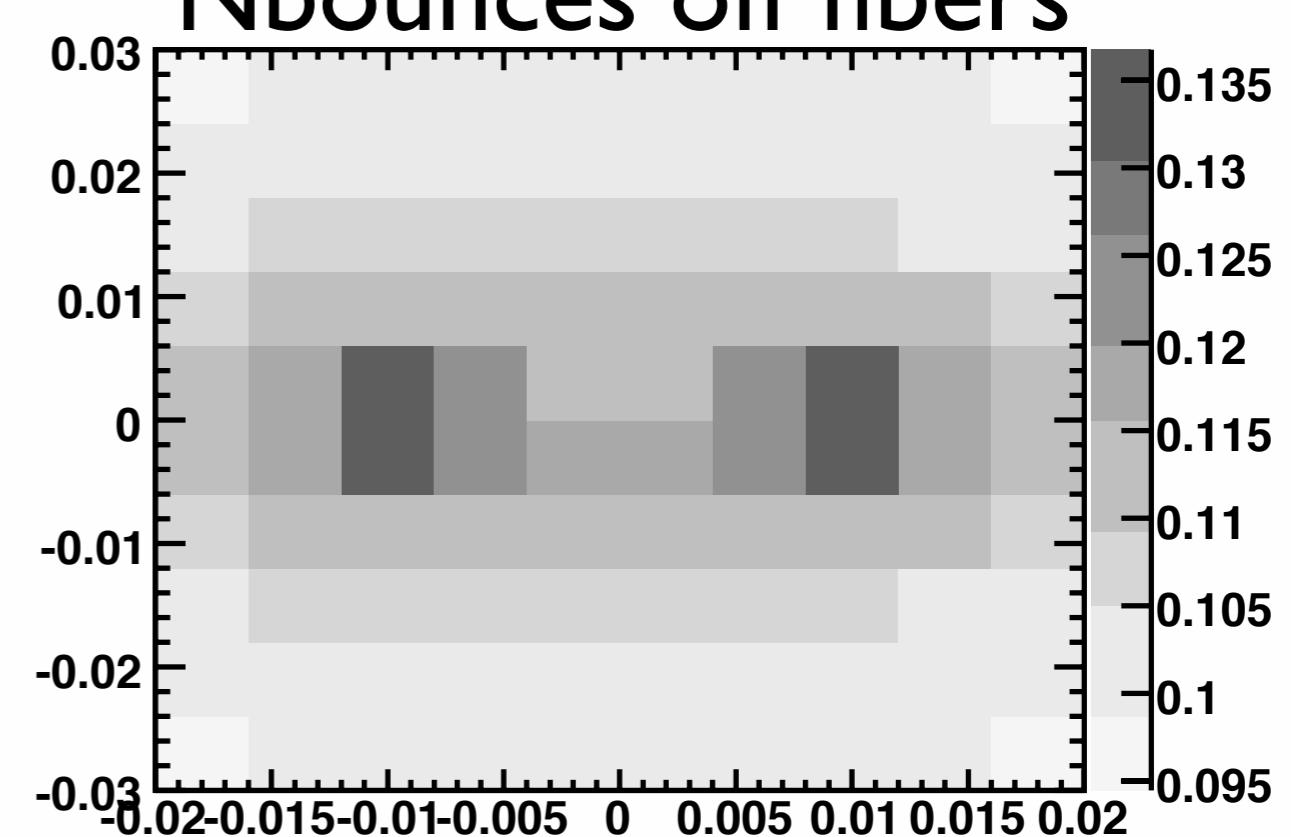


Results

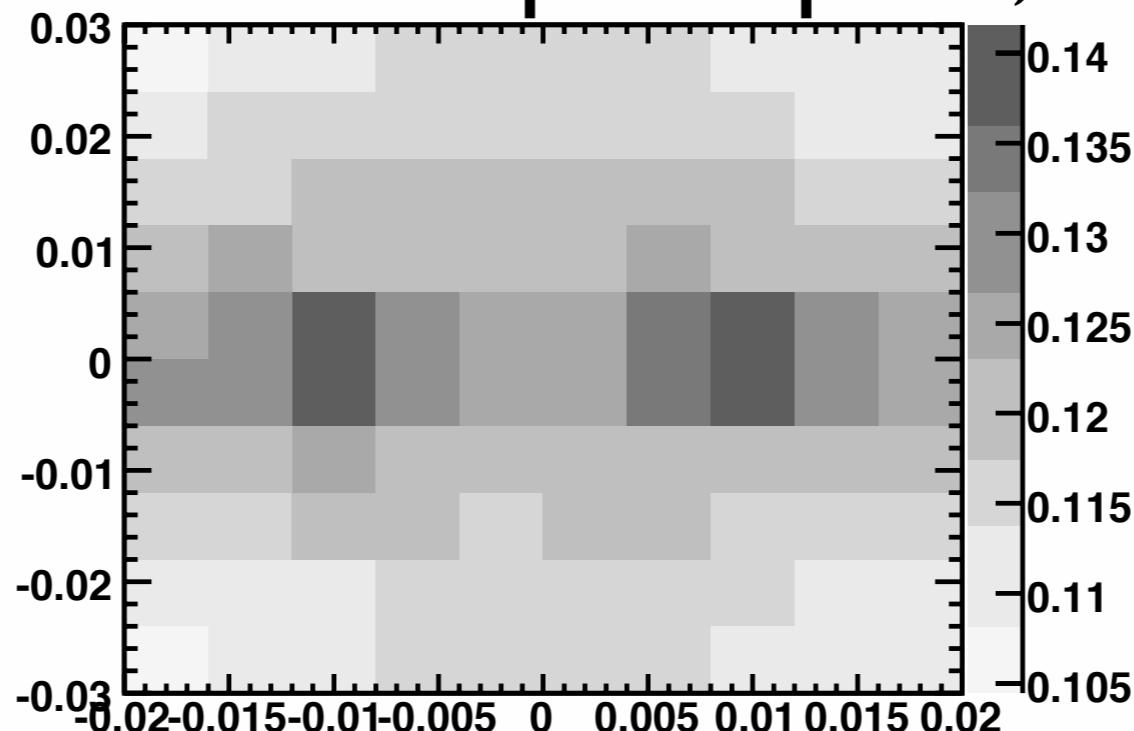
Nbounces off tio2



Nbounces off fibers



Photon capture prob,



Summary

- SimplePhotonTransport is in the PhotonTransporter package
- Works within the SoCal framework
- First version works, but it is slow (~ 10 sec/event)
- Produces something sensible however...
- Needs tuning against Jason's data.